

Day 2 – Intro to Algebraic Expressions Notes

An expression containing variables (letters), numbers, and operation symbols is called an

algebraic expression. An expression does NOT contain an equal sign.

An example of an algebraic expression is $5x + 7y - 3$.

In an algebraic expression, there are four different parts: coefficients, variables, constants, and terms.

$$8x^2 - 5x + 7y - 3$$

Variables are the letters in an expression.

x, y

Coefficients are the numbers in front of the variables.

$8, -5, 7$

Constants are the "plain numbers" or terms without variables.

-3

Terms are separated by a + or - sign and can be numbers and/or variables.

$8x^2, -5x, 7y, -3$

Practice: Complete the table below.

Expression	List Terms	List Coefficients	List Variables	List Constants
$2x + 5z - 3$	$2x, 5z, -3$	$2, 5$	x, z	-3
13	13	none	none	13
$6m^3 - 9m^2 + s - 4$	$6m^3, -9m^2, s, -4$	$6, -9, 1$	m, s	-4
$x^2 + 7x - 1$	$x^2, 7x, -1$	$1, 7$	x	-1

Evaluating Expressions

When you **evaluate** an expression, you are replacing the variable with what the variable equals:

Evaluate $4x - 5$ when $x = 6$

$$4(6) - 5$$

$$24 - 5$$

$$19$$

Practice: Evaluate the following expressions if $m = 7$, $r = 8$, and $t = -2$.

a. $5m - 6$

$$= 5(7) - 6$$

$$= 35 - 6$$

$$= \boxed{29}$$

b. $\frac{r}{t}$

$$= \frac{8}{-2}$$

$$= \boxed{-4}$$

c. $3m - 5t$

$$= 3(7) - 5(-2)$$

$$= 21 + 10$$

$$= \boxed{31}$$

d. $t^2 - 4r$

$$= (-2)^2 - 4(8)$$

$$= 4 - 32$$

$$= \boxed{-28}$$

Application: Answer the following questions:

1. You earn $15n$ dollars for mowing n lawns.

a. How much do you earn for mowing 1 lawn?

$$15(1) = \$15 \text{ for } 1 \text{ lawn}$$

b. How much do you earn for mowing 9 lawns?

$$15(9) = \$135 \text{ for } 9 \text{ lawns}$$

2. After m months, the length of a fingernail is $10 + 3m$ millimeters.

a. How long is the fingernail, in centimeters, after 8 months?

$$10 + 3(8) = 10 + 24 = 34 \text{ mm} \rightarrow \boxed{3.4 \text{ cm}}$$

b. How long is the fingernail after three years?

$$10 + 3(36) = 10 + 108 = 118 \text{ mm} \rightarrow \boxed{11.8 \text{ cm}}$$